

IN THE CLAIMS:

This listing of claims replaces all prior versions of the claims in the application. Please cancel claims 1-29 of the application without prejudice to or disclaimer of the subject matter therein. Please add new claims 30-57.

1-29. (Canceled)

30. (New) A method, comprising:

generating an audio signal based on sound data, the audio signal configured to produce sound from an audio device;

generating a haptic command based on the sound data, the haptic command configured to cause a haptic feedback device to output a haptic sensation, the haptic sensation being associated with at least one characteristic of the sound data; and

receiving a navigation command associated with the sound data and based, at least in part, on the haptic sensation.

31. (New) The method of claim 30, further comprising:

receiving a speed command associated with the sound data, the audio signal being further based on the speed command.

32. (New) The method of claim 30, further comprising:

receiving a direction command associated with the sound data, the audio signal being further based on the direction command, the direction command having a value associated with one of a forward direction and a reverse direction.

33. (New) The method of claim 30, the haptic command being from a plurality of haptic commands, the haptic sensation being from a plurality of haptic sensations, wherein:

the plurality of haptic commands is configured to output the plurality of haptic sensations continuously when the sound is produced by the audio device in response to the audio signal,

each haptic sensation from the plurality of haptic sensations has a magnitude associated with an amplitude of the sound data.

34. (New) The method of claim 30, the haptic command being from a plurality of haptic commands, the haptic sensation being from a plurality of haptic sensations, wherein:

the plurality of haptic commands is configured to output the plurality of haptic sensations continuously when the sound is produced by the audio device in response to the audio signal, each haptic sensation from the plurality of haptic sensations has a magnitude directly proportional to an amplitude of the sound data.

35. (New) The method of claim 30, the haptic command being from a plurality of haptic commands, the haptic sensation being from a plurality of haptic sensations, wherein:

the plurality of haptic commands is configured to output the plurality of haptic sensations continuously when the sound is produced by the audio device in response to the audio signal, each haptic sensation from the plurality of haptic sensations has a magnitude inversely proportional to an amplitude of the sound data.

36. (New) The method of claim 30, wherein the haptic command is configured to output the haptic sensation only when the sound having a predetermined characteristic is produced by the audio device in response to the audio signal.

37. (New) The method of claim 30, wherein the haptic command is configured to output the haptic sensation only when the sound having a predetermined characteristic is produced by the audio device in response to the audio signal, the predetermined characteristic including a rise in amplitude of the sound data over a predetermined threshold.

38. (New) The method of claim 30, wherein:

the haptic command is configured to output the haptic sensation only when the sound is produced by the audio device in response to the audio signal, the sound has a plurality of predetermined characteristics, the plurality of predetermined characteristics including a first

predetermined characteristic and a second predetermined characteristic, the first predetermined characteristic is a rise in amplitude of the sound data over a predetermined threshold, the second predetermined characteristic is a drop in amplitude of the sound data, the second predetermined characteristic being after the first predetermined characteristic.

39. (New) The method of claim 30, wherein:

the haptic command is configured to output the haptic sensation only when the sound is produced by the audio device in response to the audio signal, the sound has a predetermined characteristic, the predetermined characteristic includes a minimum time interval between a first amplitude peak of the sound and a second amplitude peak of the sound, the haptic command configured to output the haptic sensation substantially during the second amplitude peak of the sound.

40. (New) The method of claim 30, the audio signal configured to produce sound having a first set of frequencies and a second set of frequencies different from the first set of frequencies, the method further comprising:

filtering the sound data such that the first set of frequencies of the sound produced in response to the audio signal is removed and the second set of frequencies of the sound produced in response to the audio signal remains.

41. (New) The method of claim 30, the audio signal configured to produce sound having a first set of frequencies and a second set of frequencies different from the first set of frequencies, the method further comprising:

filtering the sound data such that the first set of frequencies of the sound produced in response to the audio signal is removed and the second set of frequencies of the sound produced in response to the audio signal remains,

the second set of frequencies of the sound produced in response to the audio signal is associated with a particular type of haptic sensation.

42. (New) The method of claim 30, wherein the haptic command is configured to output the

haptic sensation if a marker associated with the sound data is reached during the sound being produced in response to the audio signal.

43. (New) The method of claim 30, further comprising:
storing a portion of the sound data in a secondary buffer; and
processing the portion of the sound data to identify at least one characteristic of the sound data, the processing being performed in substantially real-time during the sound being produced by the audio device in response to the audio signal.

44. (New) The method of claim 30, further comprising:
sending a display signal associated with a visual representation of the sound produced from the audio device in response to the audio signal; and
sending a cursor signal associated with the visual representation, the cursor signal associated with a part of the sound being produced from the audio device in response to the audio signal.

45. (New) A method, comprising:
identifying a feature of a sound data, the feature having at least one predetermined characteristic, the sound data being associated with a sound waveform;
generating a marker associated with a location of the feature in the sound data based on the identifying, the location of the feature being associated with haptic feedback; and
sending a signal when the location of sound being output based on the sound data corresponds to the location associated with the marker, the signal being associated with the haptic feedback.

46. (New) The method of claim 45, wherein the at least one predetermined characteristic includes a rise in amplitude of the sound waveform associated with the sound data, the rise in amplitude being over a predetermined threshold amplitude.

47. (New) The method of claim 45, wherein the at least one predetermined characteristic includes a drop in amplitude of the sound waveform of a predetermined amount after a rise in amplitude of the sound waveform.

48. (New) The method of claim 45, wherein the at least one predetermined characteristic includes a minimum time interval between a first amplitude peak of the sound waveform and a second amplitude peak of the sound waveform, the haptic feedback is based on the sound data and associated with the second amplitude peak of the sound waveform.

49. (New) The method of claim 45, the sound data having a first set of frequencies and a second set of frequencies different from the first set of frequencies, wherein the identifying includes filtering the sound data such that the first set of frequencies of the sound data is removed.

50. (New) The method of claim 45, wherein a type of the haptic feedback is based on the at least one predetermined characteristic of the feature to which the associated marker refers.

51. (New) A processor readable medium comprising code representing instructions to cause a processor to:

generate an audio signal based on a sound data, the audio signal configured to produce sound from an audio device;

generate a haptic command based on the sound data, the haptic command configured to cause a haptic feedback device to output a haptic sensation, the haptic sensation being associated with at least one characteristic of the sound data; and

receive a navigation command associated with the sound data and based, at least in part, on the haptic sensation.

52. (New) The processor readable medium of claim 51, the haptic command being from a plurality of haptic commands, the haptic sensation being from a plurality of haptic sensations, wherein:

the plurality of haptic commands being configured to output the plurality of haptic sensations continuously when the sound is produced by the audio device in response to the audio signal, each haptic sensation from the plurality of haptic sensations has a magnitude associated with an amplitude of the sound data.

53. (New) The processor readable medium of claim 51, the audio signal configured to produce sound having a first set of frequencies and a second set of frequencies different from the first set of frequencies, the processor readable medium further comprising code representing instructions to cause a processor to:

filter the sound data such that the first set of frequencies of the sound produced in response to the audio signal is removed and the second set of frequencies of the sound produced in response to the audio signal remains,

the second set of frequencies of the sound produced in response to the audio signal is associated with a particular type of haptic sensation.

54. (New) The processor readable medium of claim 51, wherein the haptic command is configured to output the haptic sensation if a marker associated with the sound data is reached during the sound being produced in response to the audio signal.

55. (New) A processor readable medium comprising code representing instructions to cause a processor to:

identify a feature of a sound data, the feature having at least one predetermined characteristic, the sound data being associated with a sound waveform;

generate a marker associated with a location of the feature in the sound data based on the identifying, the location of the feature being associated with at least one haptic feedback; and

send a signal when the location of sound being output based on the sound data corresponds to the location associated with the marker, the signal being associated with the at least one haptic feedback.

56. (New) The processor readable medium of claim 55, the sound data having a first set of frequencies and a second set of frequencies different from the first set of frequencies, wherein the code representing instructions to cause a processor to identify further includes code representing instructions to cause a processor to:

filter the sound data such that the first set of frequencies of the sound data is removed.

57. (New) The processor readable medium of claim 55, wherein a type of the at least one haptic feedback is based on the at least one predetermined characteristic of the feature to which the associated marker refers.